

CLAIMS

What is claimed is:

- Sub AI
- 1 1. A method for re-ordering requests for shared resources, the method
2 comprising:
3 receiving requests for accessing the shared resources from one or more
4 requestors, wherein a plurality of requests may be received from each requestor;
5 arbitrating between the plurality of requests in such a way so that the plurality
6 of requests from each requestor may be re-ordered in non-FIFO order; and
7 selecting a next request to access the shared resources based on the re-
8 ordering of requests.
 - 1 2. The method of claim 1, further comprising:
2 associating a unique identifier tag with each request.
 - 1 3. The method of claim 2, further comprising:
2 using the identifier tag by the requestors to keep track of when the plurality of
3 requests from each requestor are serviced.
 - 1 4. The method of claim 3, further comprising:
2 initiating servicing of the selected request; and
3 transmitting the identifier tag and a strobe signal to a requestor that sent the
4 selected request.
 - 1 5. The method of claim 4, further comprising:

2 embedding additional information in the identifier tag that relates to data
3 associated with the request.

1 6. The method of claim 1, wherein the requests comprise memory
2 requests, and wherein the shared resources comprise a shared memory system.

1 7. The method of claim 5, wherein the selected request comprises a
2 memory write request.

1 8. The method of claim 7, wherein the additional information in the
2 identifier tag associated with the memory write request includes a location in buffer
3 memory of data to be written.

1 9. The method of claim 5, wherein the selected request comprises a
2 memory read request.

1 10. The method of claim 9, wherein the additional information in the
2 identifier tag associated with the memory read request includes a location in buffer
3 memory in which the data is to be written.

1 11. A system for re-ordering requests for shared resources, the system
2 comprising:

3 one or more requestors for sending requests for accessing the shared
4 resources, wherein a plurality of requests may be received from each requestor;

5 an arbiter for arbitrating between the plurality of requests in such a way so that
6 the plurality of requests from each requestor may be re-ordered in non-FIFO order.

1 12. The system of claim 11, wherein the requestors associate a unique
2 identifier tag with each request.

1 13. The system of claim 12, wherein the requestors use identifier tags to
2 keep track of when the plurality of requests from each requestor are serviced.

1 14. The system of claim 13, wherein the arbiter initiates servicing of the
2 selected request; and transmits the identifier tag and a strobe signal to a requestor
3 that sent the selected request.

1 15. The system of claim 14, wherein the identifier tag includes additional
2 information that relates to data associated with the selected request.

1 16. The system of claim 11, wherein the requests comprise memory
2 requests, and wherein the shared resources comprise a shared memory system.

1 17. The system of claim 15, wherein the selected request comprises a
2 memory write request.

1 18. The system of claim 17, wherein the additional information in the
2 identifier tag associated with the memory write request includes a location in buffer
3 memory of data to be written.

1 19. The system of claim 15, wherein the selected request comprises a
2 memory read request.

1 20. The system of claim 19, wherein the additional information in the
2 identifier tag associated with the memory read request includes a location in buffer
3 memory in which the data is to be written.

1 21. An apparatus for re-ordering requests for shared resources, the
2 apparatus comprising:

3 means for receiving requests for accessing the shared resources from one or
4 more requestors, wherein a plurality of requests may be received from each
5 requestor;

6 means for arbitrating between the plurality of requests in such a way so that
7 the plurality of requests from each requestor may be re-ordered in non-FIFO order;
8 and

9 means for selecting a next request to access the shared resources based on
10 the re-ordering of requests.

1 22. The apparatus of claim 21, further comprising:

2 means for associating a unique identifier tag with each request.

1 23. The apparatus of claim 22, further comprising:

2 means for using the identifier tag by the requestors to keep track of when the
3 plurality of requests from each requestor are serviced.

1 24. The apparatus of claim 23, further comprising:

2 means for initiating servicing of the selected request; and

3 means for transmitting the identifier tag and a strobe signal to a requestor that
4 sent the selected request.

1 25. The apparatus of claim 24, further comprising:

2 means for embedding additional information in the identifier tag that relates to
 3 data associated with the request.

1 26. The apparatus of claim 21, wherein the requests comprise memory
 2 requests, and wherein the shared resources comprise a shared memory system.

1 27. The apparatus of claim 25, wherein the selected request comprises a
 2 memory write request.

1 28. The apparatus of claim 27, wherein the additional information in the
 2 identifier tag associated with the memory write request includes a location in buffer
 3 memory of data to be written.

1 29. The apparatus of claim 25, wherein the selected request comprises a
 2 memory read request.

1 30. The apparatus of claim 29, wherein the additional information in the
 2 identifier tag associated with the memory read request includes a location in buffer
 3 memory in which the data is to be written.